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THE ART
OF
IMPROVING THE BREEDS
OF
DOMESTIC ANIMALS.
IN A LETTER

ADDRESSED TO

*THE RIGHT HON.
SIR JOSEPH BANKS, K. B.*

BY

SIR JOHN SAUNDERS SEBRIGHT,
BART. M. P.

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L E T T E R,

&c. &c.

DEAR SIR,

I HAVE not the presumption to think, that I can throw any light upon the art of improving the breeds of domestic animals, which is now so well understood in this country : but in obedience to your commands, I print these observations, to which I am sensible you have attached more value than they deserve.

The attention which gentlemen of landed property have of late years paid to this subject, has been extremely beneficial to the country ; not so much by the improvements which they themselves have made, as by the encouragement which the

professional breeders have received from their patronage and support, without which they could not have carried the breeds of cattle and sheep, to the perfection which many of them have now attained.

They have, likewise, been the means of making the best breeds known in every part of the kingdom, and of transporting them to districts, where it is not probable they would have been introduced, but through their agency.

The Duke of Bedford, Mr. Coke, and some few others, have not only been the liberal patrons of the professional breeders, but have themselves made great improvements in the breeds, to which their attention has been directed.

The same success has not, in general, attended gentlemen in this pursuit: the best breeds, after having been obtained by them at a great expence, too frequently

degenerate in their hands, from mismanagement. They conceive, that, if they have procured good males and good females, they have done all that is necessary to establish and to continue a good breed, but this is by no means the case.

Were I to define what is called the art of breeding, I should say, that it consisted in the selection of males and females, intended to breed together, in reference to each other's merits and defects.

It is not always by putting the best male to the best female, that the best produce will be obtained ; for should they both have a tendency to the same defect, although in ever so slight a degree, it will in general preponderate so much in the produce, as to render it of little value.

A breed of animals may be said to be improved, when any desired quality has been increased by art, beyond what that quality was in the same breed, in a state

of nature: the swiftness of the race-horse, the propensity to fatten in cattle, and the fine wool in sheep, are improvements which have been made in particular varieties of the species to which these animals belong. What has been produced by art, must be continued by the same means, for the most improved breeds will soon return to a state of nature, or perhaps defects will arise, which did not exist when the breed was in its natural state, unless the greatest attention is paid to the selection of the individuals who are to breed together.

We must observe the smallest tendency to imperfection in our stock, the moment it appears, so as to be able to counteract it, before it becomes a defect; as a rope-dancer, to preserve his equilibrium, must correct the balance, before it is gone too far, and then not by such a motion, as will incline it too much to the opposite side.

The breeder's success will depend en-

tirely upon the degree in which he may happen to possess this particular talent.

Regard should not only be paid to the qualities apparent in animals, selected for breeding, but to those which have prevailed in the race from which they are descended, as they will always shew themselves, sooner or later, in the progeny: it is for this reason that we should not breed from an animal, however excellent, unless we can ascertain it to be what is called *well bred*; that is, descended from a race of ancestors, who have, through several generations, possessed, in a high degree, the properties which it is our object to obtain.

The offspring of some animals is very unlike themselves; it is, therefore, a good precaution, to try the young males with a few females, the quality of whose produce has been already ascertained: by this means we shall know the sort of stock they get, and the description of females to which they are the best adapted.

If a breed cannot be improved, or even continued in the degree of perfection at which it has already arrived, but by breeding from individuals, so selected as to correct each other's defects, and by a judicious combination of their different properties, (a position, I believe, that will not be denied,) it follows that animals must degenerate, by being long bred from the same family, without the intermixture of any other blood, or from being what is technically called, *bred in-and-in*.

Mr. Bakewell, who certainly threw more light upon the art of breeding than any of his predecessors, was the first, I believe, who asserted that a cross was unnecessary, and that animals would not degenerate, by being *bred in-and-in*, which was at that time the received opinion.

He said, you could but breed from the best. Of this there can be no doubt; but it is to be proved, how long the same family, *bred in-and-in*, will continue to be the best.

No one can deny the ability of Mr. Bakewell, in the art of which he may fairly be said to have been the inventor: but the mystery with which he is well known to have carried on every part of his business, and the various means which he employed to mislead the public, induce me not to give that weight to his assertions, which I should do to his real opinion, could it have been ascertained.

Mr. Meynel's fox-hounds are likewise quoted as an instance of the success of this practice: but, upon speaking to that gentleman upon the subject, I found that he did not attach the meaning that I do, to the term *in-and-in*. He said, that he frequently bred from the father and the daughter, and the mother and the son. This is not what I consider as breeding *in-and-in*; for the daughter is only half of the same blood as the father, and will probably partake, in a great degree, of the properties of the mother.

Mr. Meynel sometimes bred from brother and sister: this is certainly what may be called a *little close*: but should they both be very good, and, particularly, should the same defects not predominate in both, but the perfections of the one promise to correct in the produce the imperfections of the other, I do not think it objectionable: much further than this, the system of breeding from the same family cannot, in my opinion, be pursued with safety.

Mr. Bakewell had certainly the merit of destroying the absurd prejudice which formerly prevailed against breeding from animals, between whom there was any degree of relationship: had this opinion been universally acted upon, no one could have been said to be possessed of a particular breed, good or bad; for the produce of one year would have been dissimilar to that of another, and we should have availed ourselves but little of an animal

of superior merit, that we might have had the good fortune to possess.

The authorities of Mr. Bakewell, and of Mr. Meynel, being generally quoted, when this subject is discussed, I have stated, why I reject that of the former altogether, and that the latter, in point of fact, never fairly tried the experiment.

I do not find that any of the many advocates for breeding *in-and-in*, with whom I have conversed, have tried it to any extent ; they say, that it is to perfect animals only that the practice applies, but the existence of a perfect animal is an hypothesis I cannot admit.

I do not believe, that there ever did exist an animal without some defect, in constitution, in form, or in some other essential quality ; a tendency, at least, to the same imperfection, generally prevails in different degrees in the same family. By breeding *in-and-in*, this defect, how-

ever small it may be at first, will increase in every succeeding generation ; and will, at last, predominate to such a degree, as to render the breed of little value. Indeed, I have no doubt but that by this practice being continued, animals would, in course of time, degenerate to such a degree, as to become incapable of breeding at all.

The effect of *breeding in-and-in* may be accelerated, or retarded by selection, particularly in those animals who produce many young ones at a time. There may be families so nearly perfect, as to go through several generations, without sustaining much injury, from having been bred *in-and-in* ; but a good judge would, upon examination, point out by what they must ultimately fail, as a mechanic would discover the weakest part of a machine, before it gave way.

Breeding *in-and-in*, will, of course, have the same effect in strengthening the good,

as the bad properties, and may be beneficial, if not carried too far, particularly in fixing any variety which may be thought valuable.

I have tried many experiments, by breeding *in-and-in* upon dogs, fowls, and pigeons: the dogs became, from strong spaniels, weak and diminutive lap-dogs, the fowls became long in the legs, small in the body, and bad breeders.

There are a great many sorts of fancy-pigeons; each variety has some particular property, which constitutes its supposed value, and which the amateurs increase as much as possible, both by breeding *in-and-in*, and by selection, until the particular property is made to predominate to such a degree, in some of the most refined sorts, that they cannot exist without the greatest care, and are incapable of rearing their young, without the assistance of other pigeons, kept for that purpose.

The Leicestershire breeders of sheep

have inherited the principles, as well as the stock, of their leader, Mr. Bakewell: he very properly considered a propensity to get fat, as the first quality in an animal, destined to be the food of man: his successors have carried this principle too far; their stock are become small in size, and tender, produce but little wool, and are bad breeders.

By selecting animals for one property only, the same effect will, in some degree, be produced, as by breeding *in-and-in*: we shall obtain animals, with the desired property in great perfection, but so deficient, in other respects, as to be upon the whole an unprofitable stock.

We should, therefore, endeavour to obtain all the properties that are essential to the animals we breed. The Leicestershire sheep prove that too much may be sacrificed, even to that most desirable quality in grazing stock—a disposition to get fat at an early age, and with a small quantity of food.

Many causes combine to prevent animals, in a state of nature, from degenerating; they are perpetually intermixing, and therefore do not feel the bad effects of breeding *in-and-in*: the perfections of some correct the imperfections of others, and they go on without any material alteration, except what arises from the effects of food and climate.

The greatest number of females will, of course, fall to the share of the most vigorous males; and the strongest individuals of both sexes, by driving away the weakest, will enjoy the best food, and the most favourable situations, for themselves and for their offspring.

A severe winter, or a scarcity of food, by destroying the weak and the unhealthy, has all the good effects of the most skilful selection. In cold and barren countries no animals can live to the age of maturity, but those who have strong constitutions; the weak and the unhealthy do

not live to propagate their infirmities, as is too often the case with our domestic animals. To this I attribute the peculiar hardiness of the horses, cattle, and sheep, bred in mountainous countries, more than to their having been inured to the severity of the climate; for our domestic animals do not become more hardy by being exposed, when young, to cold and hunger: animals so treated will not, when arrived at the age of maturity, endure so much hardship as those who have been better kept in their infant state.

If one male, and one female only, of a valuable breed, could be obtained, the offspring should be separated, and placed in situations as dissimilar as possible; for animals kept together are all subjected to the effects of the same climate, of the same food, and of the same mode of treatment, and consequently to the same diseases, particularly to such as are infectious, which must accelerate the bad effects of *breeding in-and-in*.

By establishing the breed in different places, and by selecting, with a view to obtain different properties in these several colonies, we may perhaps be enabled to continue the breed for some time, without the intermixture of other blood.

If the original male and female were of different families, by breeding from the mother and the son, and again from the male produce and the mother, and from the father and the daughter in the same way, two families sufficiently distinct might be obtained; for the son is only half of the father's blood, and the produce from the mother and the son will be six parts of the mother and two of the father.

Although I believe the occasional intermixture of different families to be necessary, I do not, by any means, approve of mixing two distinct breeds, with the view of uniting the valuable properties of both: this experiment has been

by Spanish rule, and also the intention of securing the Mexican States in order that they may be more generally protected, by especially securing the frontier provinces with Mexican power.

I have no doubt that the United States may be interested in a free trade in the western part of the large body of well-cultivated lands that by landings, at San Juan, a small number of the great Mexican States, land many of these lands in the hands of the great advantage in the United States for the reason of extensive territory by a more extensive trade, will show that compensation for the United States of Mexican lands, which would be immaterial in a State, removed in the United States but not in the present situation.

The introduction of Mexican Slavery in the country, upon a free field for improvement: it has been suggested that neither the Slavery nor the moral reform, any injury from the change of climate or soil.

ture ; and the absurd prejudice, that Merino wool could be grown only in Spain, is fortunately eradicated.

In comparing the Merino sheep with the South Downs, which are allowed to be the best of our short-woolled breeds, the former have very much the advantage; both as to quantity and quality of wool; but, I believe, the latter would produce by far the greatest quantity of meat, from a given quantity of food, which is the criterion by which we determine the relative value of all animals as grazier's stock.

Taking the gross produce, both of wool and of carcase, at the present prices, the Merino breed may perhaps be the most profitable : but should it be generally introduced, fine wool would become cheaper, and mutton dearer ; it is therefore not easy to form a conclusive opinion upon this subject.

Great improvements may undoubtedly

be made in the Merino breed, as to their disposition to get fat. Their advocates say, with truth, that the South Down sheep were but a few years ago as imperfect in shape as the Merino now are ; but they should recollect, that a disposition to fatten at an early age was always the characteristic of the South Down breed, even in its most unimproved state, and that it was from its possessing this very essential quality that so much attention has been paid to it.

It is well known, that a particular formation generally indicates a disposition to get fat, in all sorts of animals ; but this rule is not universal, for we sometimes see animals of the most approved forms, who are *slow feeders*, and whose flesh is of a bad quality, which the graziers easily ascertain by the *touch*. The disposition to get fat is more generally found in some breeds than in others. The Scotch Highland cattle are remarkable for being almost all *quick feeders*, although many of them are

defective in shape. The Welsh cattle have but little disposition to get fat; not from being particularly ill-shaped, but because they are almost invariably what the graziers call *bad handlers*.

We must not therefore suppose, that the bad shape of the Merino sheep is the sole cause of its being so ill calculated for the purpose of the grazier.

An observation which Dr. Jenner made to me about ten years ago, (the truth of which has since been confirmed by my own experience—that no animal whose chest was narrow could easily be made fat,) applies particularly to the Merino sheep, who are in general contracted in that part, and is well worth the attention of those who wish to improve this breed.

Perhaps the great secretion of yolk, so essential to the production of fine wool, and which is excessive in the Merino

sheep, may be incompatible with the fattening quality.

I have always found the fineness of the fleece in exact proportion to the quantity of yolk it contained. Those who are unaccustomed to examine wool, may consider this as a certain criterion of its quality: for although the hair of some dry fleeces may be fine, it will always want the elasticity which is so much valued by the manufacturer.

It is to be regretted, that so little attention has been paid to the improvement of British wool, and particularly to that of the short-woolled breeds: a fine fleece is not only more profitable to the owner, but from the closeness of its texture, and the quantity of yolk it always contains, is a much better protection to the sheep in bad weather, than the open and hairy covering, which too generally disgraces our flocks.

This extraordinary negligence in the sheep-breeders may, in some degree, be accounted for, by the manner in which the wool-trade is carried on. The *growers* are seldom well acquainted with the value of this article, or indeed with its quality, and the *buyers* find their account in fixing a general price every year, for the wool of each breed, without making any distinction between the very different quality of the pile of different flocks.

It is likewise the custom, in many parts of England, for the growers to deliver their wool to the buyers, upon their engaging to give them the highest price of the year ; such bargains (and they are very general) are of course strong inducements to the purchasers not to give the full value for any wool that may be offered to them of a superior quality.

The fineness of the fleece, like every other property in animals of all kinds, may

be improved by selection in breeding. The opinion, that good wool could only be produced in particular districts, is a prejudice which fortunately no longer exists.

Climate, food, and soil, have certainly some effect upon the quality of wool, but not so much as is generally supposed. The fleece is affected by the degree of nourishment which the animal receives, not by the quality of the pasture on which it is fed. If sheep are highly kept, their wool will become less fine, but in other respects its quality will not be deteriorated. The wool of a starved sheep may be apparently fine, but it will be brittle, and of little value to the manufacturer.

A regular supply of food to the sheep is essential to the growth of good wool; for that part of the hair which grows when the animal is in a high state of flesh, will be thick, and that which is grown when it

is reduced by hunger, will be weak and thin; and consequently the thickness of hair will always be irregular, if the animal passes from one extreme to the other.

The alteration which may be made in any breed of animals by selection, can hardly be conceived by those who have not paid some attention to this subject; they attribute every improvement to a cross, when it is merely the effect of judicious selection.

I have often been told, that from the beautiful shape of Mr. Elman's South Down sheep, they must have been crossed with the New Leicester; and that from the fineness of their wool, they must have been crossed with the Merino breed: but I do not conceive, that even the skill of this very distinguished breeder could have retained the good shape of the former, without any appearance of the coarseness of its wool, or the fine fleece of the lat-

ter, without the deformity of its carcase, had he crossed his flock with either of these breeds.

It may as well be contended, that the white pheasant, which is now become very common, was produced from a cross with a Dorking fowl, whereas it was one of those accidental varieties which sometimes occur, and which has been perpetuated by selection. The same may be said of the endless variety in the colour, shape, and size, of rabbits, ducks, and pigeons, in a domesticated state; a variety produced by the art of man, and which did not exist in these creatures in their natural state.

A greater proof, I conceive, of what may be effected by selection and perseverance, cannot be adduced.

There is, perhaps, no means by which the breeds of animals can be so rapidly, and so effectually improved, as by its be-

ing the particular business of some breeders to provide male animals for the purpose of letting for hire. Our horses could never have arrived at the degree of perfection which they have now attained, but from the facility which has been afforded to every one, by the public stallions, of breeding from the best horses of every description, at a moderate expence.

The breeds of sheep to which this practice has been applied, have attained great perfection, while those which have never been attended to by persons in this particular business, shew no signs of improvement.

No trouble or expence will be spared by those who expect to derive profit, not from the quantity, but from the quality of the animals which they breed. The competition, which must always exist between breeders of this description, will be a never-failing stimulus to exertion.

The common farmer, who seldom sees any stock but his own and that of his neighbours, generally concludes, that his own have arrived at the summit of perfection: but the breeder who lets for hire, must frequently submit his male animals to the inspection of the public, and to the criticism of his rivals, who will certainly not encourage any prejudices he may entertain of their superiority.

In this trade, as in every other, there ought to be a regular gradation; those, for example, who hire a male for eighty guineas, will be amply repaid by letting seven, or eight, for twenty guineas each, as will those who hire for twenty guineas, by letting several for five or six.

Thus each, besides the improvement of his stock, will receive a fair remuneration, and every breeder have the means of selecting the male he thinks best calculated for the females he may happen to possess.

The same effect will not be produced by the sale of male animals ; for we are induced to keep a male we have purchased at a high price, although we may not be entirely satisfied with his produce, but by hiring, we endeavour to select a male every year, with the properties in which our females are deficient, and whom we think calculated to correct the faults which arise from time to time in our stock.

These observations are the result of many years experience, in breeding animals of various descriptions : but the life of man is not long enough to form very decisive conclusions upon a subject which is so little understood, and which is darkened by innumerable prejudices. Many experiments must be tried, to establish a single fact; for Nature is sometimes so capricious in her productions, that the most accurate observer will be frequently deceived, if he draws any inference from a single experiment.

I have freely stated my opinions, without considering them as conclusive, and shall be much gratified if they induce others to direct their attention to a subject which appears to me of great importance to the agricultural interests of this country.

I have the honour to be,
Dear Sir,
With great regard,
Your obedient humble Servant,

J. S. SEBRIGHT.

Beechwood, Aug. 1, 1809.

THIRD VINDICATION
OF
THE GENERAL PENITENTIARY,
&c. &c.

